Kentucky Method 64-226-02
Revised 12/27/02
Supersedes KM 64-226-00
Dated 1/13/00

WATER FOR USE WITH CEMENT

1. SCOPE: This test method outlines the procedure for sampling and testing water for use with cement.

2. APPARATUS AND MATERIALS:

   2.1. 0.1 Normal Sulfuric Acid

   2.2. 0.02 Normal Sodium Hydroxide

   2.3. Methyl Orange Indicator

   2.4. Phenolphthalein Indicator

   2.5. Potassium Chromate Indicator

   2.6. 0.1 $AgNO_3$

3. SAMPLE: Water samples are received in a 0.95 liter (quart) glass or plastic containers.

4. PROCEDURE:

   4.1. Organic and Inorganic Solids:

      4.1.1. Heat a No. 1 porcelain crucible in a bright red muffle furnace for 15 minutes. Cool in desiccator, and carefully weigh to 0.0001 grams. Shake sample well, and measure 25 ml in graduated cylinder. Immediately transfer to weighed crucible. Place crucible on steam bath, or on asbestos pad on hot plate, and evaporate to dryness. Place in oven at temperature of 100 – 100 °C. for one hour. Cool in desiccator and re-weigh.

      Gain in Weight x 4 = Total Solids

      4.1.2. Heat crucible and total solids in bright red muffle furnace for 30 minutes. Cool in desiccator and re-weigh.

      Loss in weight x 4 = Organic Solids

      4.1.3. Inorganic solids are determined by subtracting organic solids from total solids. Organic solids and inorganic solids are reported separately.

4.2. Acidity or Alkalinity:

4.2.1. Most water samples received are alkaline. Test results are reported as percent total alkalinity in terms of calcium carbonate.

4.2.2. Measure 100 ml of sample in a graduated cylinder after shaking well. Transfer to porcelain casserole, and add 3 drops of methyl orange indicator. Titrate to orange end point by adding 0.1N sulfuric acid drop by drop from a burette.

m1 1/10 N H_2SO_4 x .005005 = Percent Alkalinity as $CaCO_3$

4.2.3. If acidity is to be determined, the same general procedure as above may be used by titrating with 0.02 N sodium hydroxide solution using phenolphthalein as the indicator.

4.3. Chloride ion in water: Procedure in ASTM D 512 Method B Silver Nitrate.

5. CALCULATIONS: Calculations are given in the Procedures.

6. PRECAUTIONS: Any precautions necessary are found in the Procedures.

7. REPORT:

7.1. % Total Solids

7.2. % Organic Solids

7.3. % Inorganic Solids

7.4. % Alkalinity or Acidity as $CaCO_3$

7.5. % Chloride ion in water

APPROVED _____
Director
DIVISION OF MATERIALS

DATE _____12/27/02_____